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## The Role of the Physical Therapist in Health Promotion as Perceived by Patients with Neurological Pathologies: A Descriptive Study

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THE ROLE OF THE PHYSICAL THERAPIST IN HEALTH PROMOTION AS  
PERCEIVED BY PATIENTS WITH NEUROLOGICAL PATHOLOGIES: A  
DESCRIPTIVE STUDY

by

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March 27, 2016

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## **Abstract**

**Background and Purpose:** Patients with neurological pathologies have been found to be less likely to engage in personal health behaviors than the general population. This predisposes them to acquire secondary chronic conditions such as obesity, diabetes, and cardiovascular disease. Studies suggest that this population may be underserved in regards to the promotion of health behaviors. Literature is lacking regarding neurological patients' perspectives of the physical therapist's role in promoting personal health behaviors. The purpose of this study was to investigate the perceptions of patients with neurological disability regarding the physical therapist's role in promoting the personal health behaviors of physical activity, healthy weight management, smoking cessation, and fruit and vegetable consumption.

**Methods:** A convenience sample of patients from a Minneapolis area outpatient rehabilitation center was obtained by physical therapist referral. Surveys were distributed to patients who met the inclusion criteria. The survey obtained information regarding the patient's perception of what the role of the physical therapist should be for each personal health behavior. Data were analyzed using Microsoft Excel 2013.

**Results:** Thirty-five surveys met inclusion criteria and were analyzed. Respondents' demographics were as follows: mean age of  $52.3 \pm 16.7$  years, 62.9% were male, average BMI of  $28.1 \pm 6.6$  and 73.5% reported having a neurological condition for at least 3

years. A key finding was that 76% of respondents believe that physical therapists should suggest ways to maintain a healthy weight, however it was only addressed with 37% of the sample. The majority of respondents believed physical therapists should advise them about physical activity (88.6%), smoking cessation (65%), and weight management (83%).

**Conclusion:** Overall, respondents with chronic neurological conditions in an outpatient setting who were surveyed expressed the belief that physical therapists should advise them in the personal health behaviors of physical activity, weight management, smoking cessation, and fruit and vegetable intake. Although the majority of respondents believed weight management should be discussed in their therapy sessions, only 37% reported their physical therapist addressed their weight. This finding suggests a potential opportunity for physical therapists to have conversation with their patients on healthy weight management.

The undersigned certify that they have read, and recommended approval of the research project entitled

THE ROLE OF THE PHYSICAL THERAPIST IN HEALTH PROMOTION AS  
PERCEIVED BY PATIENTS WITH NEUROLOGICAL PATHOLOGIES: A  
DESCRIPTIVE STUDY

Submitted by

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In partial fulfillment of the requirements for the Doctor of Physical Therapy Program

Primary Advisor  Date 4-26-16

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## Table of Contents

Section	Page
Chapter I: Introduction	1
Chapter II: Review of Literature	5
Chapter III: Conclusion	34
Chapter VI: Methods	35
Chapter VII: Results	40
Chapter VIII: Discussion	42
Chapter IX: Conclusion	50
References	52
Table 1: Demographics	59
Table 2: Study Results	60
Appendix A: Study Survey	62
Appendix B: Script and FAQs for Clinic Receptionist	73
Appendix C: Information Sheet Provided in Patient	76
Study Packet	

## **Introduction**

The American Physical Therapy Association's (APTA) vision states that the future of the physical therapy field is "transforming society by optimizing movement to improve the human experience".<sup>1</sup> One important aspect of optimizing movement is the promotion of health and wellness with patients. Wellness is defined by the APTA as "a multidimensional state of being describing the existence of positive health in an individual as exemplified by quality of life and a sense of well being".<sup>2</sup> Physical therapists can facilitate wellness for patients in clinical practice by promoting personal health behaviors such as physical activity, healthy weight management, a nutritious diet, and smoking cessation. Assisting patients in lifestyle changes to improve health and wellness will aid in the reduction of chronic, secondary pathologies such as cardiovascular disease, diabetes, stroke, and lung disease that can arise as a result of unhealthy behaviors due to a primary pathology. It has been suggested that much of the morbidity and mortality in the United States is directly due to these conditions, which are linked with lifestyle risk factors.<sup>3</sup> Helping patients improve their health behaviors will ultimately benefit society by decreasing healthcare costs. Patient's quality of life will also be positively impacted by minimizing their risk for secondary conditions. The topic of improving wellness in the United States population is being addressed at the national level through the objectives of the Healthy People 2020 initiative, which provides guidelines and goals for improving the health of all Americans.<sup>4</sup>

Physical therapists are uniquely qualified to play an instrumental role in implementing the goals of Healthy People 2020 into society. A recent APTA position

statement states that physical therapists are “the dynamic link between health and healthcare”.<sup>2</sup> Current educational standards ensure that graduating physical therapists are well prepared to assist patients by promoting healthy behaviors in an attempt to prevent secondary chronic disease. Three new APTA position statements were adopted in 2015: one on physical therapists improving the health status of populations and individuals; another on the physical therapist’s role in the prevention, wellness, fitness, health promotion and, disease management; and lastly, one on the physical therapist’s role in diet and nutrition.<sup>5</sup> The Commission on the Accreditation of Physical Therapy Education (CAPTE), the accreditation body for physical therapy education programs, requires physical therapy programs to prepare students to be able to address the promotion of personal health behaviors with patients and clients, ensuring that all physical therapist graduates are clinically qualified to assist patients with making and reaching their wellness goals.<sup>6</sup> These educational qualifications are further supported by the APTA’s scope of practice which states that physical therapists are involved in “preventing injury, impairment, functional limitation, and disability, including the promotion and maintenance of health, wellness, fitness, and quality of life in all age populations.”<sup>7</sup>

Additionally, physical therapy practice provides an optimal opportunity to promote wellness and provide education, considering the magnitude of time spent with patients over extended episodes of care to build rapport and assist in behavior modification.<sup>8</sup> A 2012 review by Frerichs and colleagues examined the efficacy of health promotion in physical therapy practice. It was concluded, based on an extensive review of existing literature, that physical therapists are effective in counselling patients about



healthy lifestyle modifications both individually and as a member of an interprofessional healthcare team.<sup>9</sup> As previously stated, physical therapists are well prepared and have ample opportunity to discuss health behaviors with patients, and they have been shown to be effective in promoting health and wellness among patients.

Physical therapy practice is highly involved in caring for individuals with disabilities. Currently in the United States, approximately 36.2 million community dwelling adults 18 and over are living with a physical disability.<sup>10</sup> A large contributor of this population are those with disabilities of a neurological nature. Current literature indicates that individuals with disabilities have a higher rate of negative health behaviors, such as smoking and inactivity, leading to an increased risk of developing chronic disease.<sup>11-13</sup> Additionally, patients with disabilities identify more barriers to healthy behaviors than the general population.<sup>14</sup> Current research provides strong evidence that participating in healthy behaviors can improve the health of individuals with disability similarly to those who are able-bodied.<sup>15</sup> Engaging in healthy behaviors can decrease the risk of developing chronic secondary conditions and, therefore, reduce healthcare costs for people with disabilities.<sup>14</sup>

Health promotion is especially important for the disabled population because while emerging technology is assisting in prolonging the lifespan of individuals with disability, the quality of life component may be lagging behind.<sup>16</sup> Promoting healthy behaviors may be a powerful tool to increase quality of life in patients with disabilities and supplement their medical intervention. Despite this evidence, the disabled population is traditionally underserved by healthcare professionals in terms of health promotion.<sup>16</sup> A

study investigating the attitudes of physicians regarding wellness promotion to individuals with disability found that physicians who believe wellness activities are important are significantly more likely to promote these behaviors with their patients. Additionally, several barriers to addressing wellness activities with the disabled population were identified and included perceived lack of time, insufficient insurance coverage, lack of patient interest, and poor mental health of the patient.<sup>17</sup> Due to increased risk of individuals with disabilities developing secondary complications, it is extremely important for the healthcare community to find solutions to these barriers in order to promote health and wellness with these patients. Preventing secondary conditions, and thereby promoting health, will move American society towards reaching the goals and objectives of Healthy People 2020, lower the overall cost of healthcare, and improve quality of life for individuals with disability.

Currently, there is limited research centered on the perceptions of patients with disabilities regarding the role of physical therapists or similar healthcare professionals in health promotion. A study by Duaso and Cheung surveyed patients about their perceptions of health promotion from nurse practitioners in a general practice setting. It was found that only 6% of responding patients indicated they were counseled on diet, and 4% received advice on smoking cessation. Physical activity was addressed with only 4% of patients and alcohol consumption with 2%. This is contrasted by the startling statistic that 67% and 47% reported their primary means of health promotion information to be magazines and television respectively. Most importantly, it was found that patients wished for more advice on lifestyle behaviors from healthcare professionals. Those who

did receive advice found it to be significantly helpful.<sup>18</sup> There is a current lack of research regarding how all patients feel about health promotion in the physical therapy setting.

The purpose of this study was to investigate the perceptions of patients with neurological disability regarding the physical therapist's role in promoting personal health behaviors (PHB) of physical activity, healthy weight management, smoking cessation, and fruit and vegetable consumption. A secondary purpose was to study the patient's beliefs with regard to whether their physical therapist should role model these healthy behaviors.

## **Review of Literature**

### ***Physical Activity***

#### **Introduction**

Physical activity is an important component of an individual's health, and is steadily gaining recognition in the literature as an avenue for the improvement of overall population health.<sup>4</sup> Adequate levels of physical activity have been shown to decrease risk factors for a host of different pathologies and can contribute to a high quality of life. Nicklett and colleagues demonstrated that individuals engaging in regular physical activity had a significantly decreased risk of overall mortality.<sup>19</sup> The American College of Sports Medicine guidelines state adults should engage in 150 minutes of moderate intensity exercise per week in order to minimize risk factors for disease and maximize health benefits.<sup>20</sup> Despite the increased public focus, statistics show that many American adults (46.3%) are not meeting these guidelines.<sup>12</sup>

This trend of physical inactivity is even more prevalent among the disabled population. Recent data from the National Health Interview Survey indicates that 11.6% of adults in the United States report having a disability. Of this population, 69% are not meeting the recommended guidelines for physical activity and almost half (47.1%) report less than 10 minutes of aerobic activity a week. It has also been found that individuals with a disability who are inactive are 50% more likely to report chronic disease than those who participate in regular physical activity.<sup>12</sup> Additionally, for people living with long term neurological conditions such as stroke, Multiple Sclerosis (MS), and Parkinson's disease, exercise can help decrease the occurrence or severity of secondary complications like pain and depression that may often accompany a primary impairment.<sup>16</sup>

The Healthy People 2020 initiative aims to promote factors that will increase the health of all Americans, including those with a reported disability.<sup>4</sup> Physical inactivity continues to be a major health issue in the United States. Given that current literature overwhelmingly highlights the health benefits of physical activity, it is extremely important for healthcare professionals to promote physical activity and healthy behaviors for patients, regardless of their ability level. Through extensive didactic preparation and ample clinical opportunity, physical therapists are especially qualified to prescribe appropriate physical activity for patients with a wide range of neurological conditions.

### **Role of the Physical Therapist**

Individuals with chronic neurological conditions are likely to have many experiences with various disciplines within the healthcare system over a long span of

time. Many of these patients are seen in physical therapy, perhaps repeatedly, due to the nature of neurological impairments which often hinder functional mobility.<sup>21</sup> The goal of physical therapy as indicated by the current APTA vision statement is to “transform society by optimizing movement in order to improve the human experience”.<sup>7</sup> Physical activity promotion, beyond the exercises prescribed as part of the rehabilitative plan of care, is a way to assist patients with optimizing movement and is well within the scope of physical therapist practice. Physical therapists are uniquely qualified within the healthcare team to take a lead role in physical activity promotion for individuals with chronic neurological conditions.

In physical therapy education, extensive emphasis is placed on physical activity prescription for individuals across the lifespan and ability levels. A curriculum investigation performed by O’Donoghue and colleagues in 2011 reported that graduating physical therapists are well prepared in the areas of exercise science, physical activity, and exercise testing and prescription. Current educational standards also focus on response to exercise in patient populations and include exercise promotion.<sup>22</sup> The Commission on Accreditation in Physical Therapy Education (CAPTE) in the United States has asserted that one of the evaluative criteria for physical therapy education is that a graduating physical therapist is qualified to “provide culturally competent physical therapy services for prevention, health promotion, fitness, and wellness to individuals, groups, and communities.”<sup>6</sup>

In a qualitative study based out of New Zealand and Sweden, Mulligan and colleagues interviewed 9 physical therapists about their perspectives on the promotion of

physical activity for people with disabilities of neurological origin. All of the physical therapists interviewed acknowledged their own expertise in the areas of pathophysiology and exercise prescription, and they felt this knowledge facilitated the adequate prescription of physical activity for those with complex neurological diagnoses and profound functional limitations. Furthermore, it was shown that these physical therapists overwhelmingly believed in the beneficial effects of physical activity for people living with disabilities and that sufficient levels of activity for these individuals is an attainable goal.<sup>21</sup> They indicated that addressment of impairments and activity limitations is the role of traditional physical therapy, and a broader focus is now emerging that takes a more holistic approach to patient management. This focus involves increased education, encouragement and promotion centered on the patient as a whole, which includes healthy lifestyle and personal health behaviors.<sup>21</sup>

Due to the educational requirements and role in optimizing movement, physical therapists report confidence in recommending physical activity. A cross sectional survey by Shirley et al. examined the perspectives of a random sampling of physical therapists across practice settings about physical activity promotion and found that 97% felt confident giving general advice about physical activity. Only slightly less, 91% had confidence in prescribing a specific regimen for patients.<sup>23</sup> This is contrasted by a survey of general practitioners that indicated that while 92% of reporting physicians felt confident giving general physical activity advice, only 69% reported confidence in suggesting specific physical activity programs.<sup>24</sup> These results indicate that physical

therapy may be the optimal setting in which to promote specific physical activity regimens to increase a patient's overall wellness.

Over 95% of practicing physical therapists surveyed believed it was indeed their role to promote the benefits of physical activity to patients. Additionally, it was found that these physical therapists strongly believed that it would be feasible to include brief physical activity counseling in regular physical therapy treatment sessions, and 90% thought that distributing physical activity resource materials to patients would also be easily possible.<sup>23</sup> Familiarity with complex neurological pathology, clinical expertise, and time with the patient, in addition to expertise and confidence with physical activity prescription, leads physical therapists to have a strong role in physical activity promotion within the healthcare system for patients with chronic neurological conditions.

### **Physical Therapist Practice**

Despite overwhelming evidence that physical therapists are well qualified to provide physical activity counseling for patients with disability, there is a lack of evidence as to whether this is being actualized in physical therapy practice. In the aforementioned article by Shirley and colleagues, it was found that only 54% of responding physical therapists incorporate regular physical activity counseling into their practice. Despite reporting high confidence and feasibility, barriers to physical activity promotion with patients were also identified. Identified barriers include lack of time, patient interest, and counseling skills, as well as reimbursement issues and the feeling that efforts would not be effective or beneficial for the patient.<sup>23</sup>

Physical activity promotion in people living with chronic disability can be additionally challenging. Only 44% of adults reporting disability received physical activity recommendation or counseling from any healthcare professional over the past year.<sup>12</sup> The physical therapists interviewed by Mulligan et al. identified that promoting community recreational activities is more difficult for patients with neurological disability as facilities and environments designed for able-bodied individuals may not meet their needs. Additionally, the physical therapists felt there exists a general lack of knowledge in the greater healthcare community about how physical therapy may benefit these individuals. Long waiting lists and lack of referral can minimize a patient's access to physical therapy services in the first place.<sup>21</sup> Regular physical activity is an important component of health for all individuals; while physical therapists are qualified to recommend physical activity to patients, there is more that can be done in practice to consistently promote physical activity in patients with neurological conditions.

### **Patient Knowledge and Beliefs**

It has been demonstrated in the literature that patients with chronic neurological disability engage in less physical activity than able-bodied individuals despite being more at risk for secondary complications and other chronic lifestyle conditions like heart disease and diabetes.<sup>12,21</sup> Many patients perceive significant barriers to physical activity that must be addressed in order to improve activity engagement. Fear of falling, feelings of embarrassment, lack of time, fatigue, accessibility of exercise facilities, cost, and lack of resources and support have all been identified as factors limiting physical activity participation in patients with neurological conditions<sup>16,25-27</sup>



While healthcare providers, especially physical therapists, may greatly aid in overcoming some of these identified obstacles, many patients report that physical activity was not addressed by their healthcare providers.<sup>21</sup> Many of these individuals receive a great deal of guidance in health management and day to day activities by their various providers, and overlooking the topic of physical activity may serve to discourage a patient from engaging in healthy levels of activity and be a disservice to them.<sup>21</sup> Although this is of concern, Black found that 74.3% of patients in an outpatient setting reported their physical therapist addressed physical activity with them.<sup>28</sup> There is limited research investigating what patients with neurological disability believe the role of the physical therapist to be in physical activity promotion. A qualitative investigation by Mulligan et al. in 2012 examined the beliefs of patients with chronic neurological conditions who did engage in regular physical activity. It was found that patients often began engaging in physical activity following a sudden decrease in function or in an attempt to minimize functional decline, but many elaborated on the importance of extrinsic encouragement. When most effective, this encouragement comes from healthcare professionals, and participants elaborated that professional guidance helped them overcome obstacles to participating in physical activity and, therefore, increased their quality of life.<sup>16</sup> It remains unclear how perceptions of the physical therapist's role may differ in the majority of disabled patients that are not currently recreationally active. Physical activity support and guidance provided by physical therapists may serve to promote the self-efficacy of patients and provide them with the tools to begin attaining

their wellness goals and enjoying the benefits that regular physical activity offers for the improvement of their overall health and well-being.

## ***Weight Management***

### **Introduction**

The Healthy People 2020 initiative expresses the importance of maintaining a healthy body weight and its contribution to decreasing the prevalence of chronic diseases.<sup>4,29</sup> Individuals who maintain a healthy body weight are less likely to develop chronic illnesses such as hypertension, hyperlipidemia, osteoarthritis, stroke, certain cancers, and type 2 diabetes.<sup>20</sup> In healthcare settings, body weight is often monitored by a standardized method known as the Body Mass Index (BMI) scale ( $\text{kg/m}^2$ ). BMI is the ratio of an individual's weight relative to height.<sup>30</sup> The BMI scale indicates that individuals with a score of less than 18.5 are classified as underweight, 18.5 to 24.9 fall in the normal range, 25-29.9 are overweight, and those with a BMI of 30 or higher are termed obese. It has been demonstrated in the literature that a higher BMI has been associated with a significantly increased risk of cardiovascular disease.<sup>31</sup>

Currently in the United States, a significant portion of the population have BMIs over the healthy range. In 2011- 2012, the CDC calculated that 35% of individuals 20 years or older were obese.<sup>32</sup> This is an alarming 50% increase in overweight or obese individuals over a mere span of the past 40 years.<sup>31</sup> Further, obesity is estimated to cause more morbidity than smoking, alcoholism, and poverty. Without intervention, obesity is projected to soon become the leading cause of preventable death in the United States.<sup>31</sup> A

study by Peters et al. suggests that the difficulty in maintaining a healthy body weight stems from a societal environment which fosters weight gain by requiring little physical activity for survival and offers an abundant supply of high-calorie, low-nutrient foods.<sup>33</sup> In order to get an adequate amount of physical activity to balance energy intake, individuals must make a substantial cognitive effort, which does not seem to be a current societal trend.<sup>33</sup> Although efforts are being made to address the obesity epidemic, significant progress has yet to be made in reducing the percentage of the population that is overweight or obese.

Obesity is also a significant concern for individuals living with disability. Studies have shown that individuals with a disability are 66% more likely to be obese than those without a disability.<sup>14</sup> Excessive weight in this population increases the risk for chronic conditions and may decrease quality of life, functional independence, and productivity.<sup>20,34</sup> Included in these statistics are individuals with disability of a neurological nature. Medical advances have increased the rate of survival for those with acquired and progressive neurological conditions and, therefore, it is increasingly important to assess long term outcomes in this population, including BMI.<sup>35</sup> Individuals with a neurological disability are considered a vulnerable population for obesity due to the potential for limited mobility, cognitive deficits, and medically complex conditions.<sup>11</sup> Therefore, an emphasis must be placed on addressing weight management with this population in healthcare practice.

The healthcare team has an obligation to assist patients with disability by providing the best quality of care and addressing all aspects of wellness, including the

promotion of a healthy weight. Current literature reports that individuals with neurological conditions can benefit from weight management interventions that focus on the prevention of secondary conditions.<sup>36</sup> For example, individuals with spinal cord injuries have showed significant improvements in psychosocial skills, activities of daily living, body image, and physical function by decreasing excess body weight or maintaining it in a healthy range.<sup>37</sup> Promotion of a healthy body weight is necessary to promote clients' function, enhance leisure abilities, and allow for participation in society.<sup>8</sup> It has even been suggested in a study by Froehlich-Grobe and colleagues that the prevalence of obesity and other chronic disease risk factors increased severity of a patient's disability.<sup>34</sup> Physical therapists offer a unique opportunity within the healthcare system to be key players in promotion of the achievement and maintenance of a healthy weight in individuals with a neurological disability, as it has been shown to be beneficial for these patients.

### **Role of the Physical Therapist**

Physical therapists are uniquely qualified to address healthy weight promotion in individuals living with neurological disability. Physical therapy practice is based on the International Classification of Functioning, Disabilities, and Health model.<sup>13</sup> This model views the patient through a biopsychosocial lens, taking into account their impairments, activity limitations, participation restrictions, as well as environmental and personal factors. Weight management is an example of a personal factor that can and should be addressed by physical therapists, as it has the potential to greatly impact an individual's function and quality of life.

Physical therapists are well prepared to address weight management with patients. Current physical therapy education includes the promotion of a variety of personal health behaviors including assessment of body weight and obesity.<sup>6</sup> The common assessment tools used by physical therapists to determine an individual's weight status are based on BMI, waist circumference, and weight history.<sup>38,39</sup> Additional assessments that can be used for disabled individuals include circumference of neck and waist, and a measurement of height in segments from the heel to the hip and the hip to the top of the head.<sup>37</sup> Physical therapists are also trained in identification of risk factors for obesity including neuroendocrine disorders, family history of obesity, previous weight history, depression, high stress levels, and smoking.<sup>7</sup>

In addition to being prepared to assess body weight with patients, physical therapists are well qualified to provide interventions to address it. It is well within the physical therapy scope of practice to provide preventive care, in order to minimize risk factors like obesity, in an attempt to prevent or slow the onset of secondary conditions. In a population with acquired and/or progressive neurological conditions, preventative care becomes essential in order to decrease these potentially long term, secondary impairments. The APTA recommends that physical therapists “manage limitations and disabilities, including services that help maintain or prevent the deterioration in physical, cognitive, or behavioral function”.<sup>40</sup> A large component of physical therapy practice and intervention deals with exercise and minimizing the risks associated with inactivity.<sup>7</sup> Many individuals with neurological disability have difficulty with some aspect of mobility, thus it is important to address healthy weight with patients as it has been found

that a lack of physical activity doubles the risk of cardiovascular disease, coronary heart disease and stroke.<sup>20</sup> Physical therapists are well placed in the healthcare continuum to provide interventions to address body weight with people who have a neurological condition. They have extensive knowledge about neurological pathophysiology and often have extended experience working with disabled populations.

Physical therapists also have the opportunity to provide healthy weight promotion within physical therapy treatment. They address the challenges of physical impairment brought on by disability including weakness, spasticity, reduced exercise ability, and chronic pain that may also be limiting a patient's ability to engage in healthy behaviors in order to keep a healthy weight.<sup>36</sup> Patients with neurological conditions are likely to have multiple encounters with physical therapy in various settings during the medical management of their condition. Extended periods of time spent with a patient with neurological disability allows for the development of rapport, which may increase the opportunity for and efficacy of intervention directed at achievement of a healthy body weight. Physical therapists also have the opportunity to utilize long treatment sessions for interventions related to health promotion and weight management.<sup>21</sup>

Not only are physical therapists qualified and have opportunity to address the issue of body weight with patients, they have also been shown to be effective in practices of healthy weight promotion. A study by Rea found that 71.3% of physical therapists were confident in addressing nutrition and overweight issues.<sup>41</sup> Another study reported that individuals with neurological conditions who received individualized exercise and nutrition plans had significantly decreased BMI, increased strength, and increased fruit

and vegetable consumption in comparison to a control group.<sup>36</sup> These results show that while addressing the topic of body weight with patients may be a sensitive conversation, physical therapists have the ability to provide patients with the tools to effectively make life changes to address obesity.

### **Physical Therapist Practice**

It is essential to look at the ways weight management is being addressed in practice in order to examine what assistance physical therapists are currently providing for patients. While physical therapists are both well qualified and have opportunity, the existing standard of care for those with neurological conditions does not always include weight management.<sup>37</sup> In 2004, physical therapists from New York, California, and Tennessee practicing in orthopedics, general medicine, and neurological settings reported assisting 54% of patients with increasing physical activity but only 19% of patients with nutrition and weight management.<sup>41</sup> Self-efficacy of the same group of physical therapists was measured with a Likert rating to determine if the physical therapist agreed or disagreed to having the confidence to address body weight issues with their patients. Approximately one third of physical therapists surveyed indicated they were not confident addressing weight with patients. It is likely that this statistic may be even higher in physical therapists working with patients with neurological deficits, although more research is needed on the subject. To promote the nation's goals of healthy people 2020, it is essential for healthcare professionals, especially physical therapists, to play an active role in addressing health behaviors in all patients.

It is important to identify the barriers to providing weight management counseling that may be the cause of discrepancies among practicing physical therapists in addressing weight management with patients who have a neurological disability. Rimmer et al. acknowledged that physical therapists find that creating an exercise plan for individuals who only have functional use of their upper extremities is challenging.<sup>36</sup> Therefore, mobility limitations are a barrier to providing adequate encouragement for managing weight with physical activity. It was reported by physical therapists in a rehabilitation setting that patients with a stroke diagnosis had greater fear of falling, depression, decreased activity, and cognitive changes, making it difficult to discuss health behaviors such as weight management.<sup>8</sup> All of these barriers can play a role in preventing physical therapists from engaging in healthy weight promotion with patients, which could ultimately benefit their health and well-being.

### **Patient Knowledge and Beliefs**

Patient perceptions of the physical therapist's role in addressing health behaviors such as weight management needs further investigation. The perspectives of individuals in an outpatient setting were investigated and found that a majority of patients agreed that physical therapist should advise, discuss benefits, and suggest ways to maintain a healthy weight.<sup>28</sup> Gaining the patients' perspectives of techniques used by healthcare practitioners could bring awareness of patients' wants and needs and increase efficacy of intervention for individuals with disability. Putman et al. sought to investigate the perspectives of patients living with a disability and their thoughts about health and wellness. Subjects from rehabilitation centers, local disability agencies and independent



living centers in Oregon, California, and Texas reported that they believed a focus on health and wellness was a high priority. It allowed them to increase functional independence, achieve both physical and emotional well-being, and decrease pain. One component of this focus on health and wellness was healthy weight promotion. Twenty five percent of patients reported weight management was a key factor in maintaining their current level of function.<sup>42</sup> This indicates patients are aware that maintaining a healthy weight has the potential to greatly impact their life.

Evaluating perceived barriers to healthy behaviors in those with disability can also help guide treatment approaches. The aforementioned study highlighted several factors patients felt were barriers to achieving health and wellness.<sup>42</sup> Individuals with disabilities reported these barriers included stress, depression, and frustration with healthcare providers. It was stated that they wanted their care providers to look at them as a whole person, not just their condition. Subjects even went so far as to identify healthcare practitioners themselves as a barrier to achieving health and wellness. Those with a disability reported that they sought direction from physicians as to which health behaviors to engage in, but were faced with practitioners who did not have knowledge about how to counsel with specific consideration for their condition.<sup>42</sup> Another study reported that only 22% of the advice patients received about healthy living was from a healthcare professional.<sup>18</sup> Statements from both of these studies support the notion that patients are looking for more advice from their healthcare providers.

Individuals living with physical and potentially cognitive disabilities have health and wellness needs similar to those of an able-bodied individual. Unfortunately, research

currently shows that individuals with disabilities perceive that healthcare professionals are lacking knowledge of their conditions, skills to properly treat their functional needs, and enough time to dedicate to problem solving through the complexities that come with achieving wellness with a disability.<sup>42</sup> The area of weight management is of great importance for this population's overall health and wellness, and the perceptions of patients with neurological conditions about the physical therapist's' role in health promotion needs to be better understood. To properly counsel for weight management, the physical therapy community should continue to assess the needs and wants of patients in this regard in order to overcome barriers and provide patients with the care they seek.

### *Smoking Cessation*

#### **Introduction**

Smoking has been found to have negative effects on multiple body systems and is the leading risk factor for the development of cardiovascular disease. Despite countless public health initiatives, smoking remains a significant health issue in the United States. In 2013, over 42 million adults in the United States smoked cigarettes, creating a substantial burden on the national economy.<sup>43</sup> Between the years of 2009 - 2012, the economic cost to the healthcare system from smoking was between 289 and 332 billion dollars, of which, over \$132 billion was due to direct cost from smoking related medical care.<sup>44</sup> This indicates that there is room for growth in the healthcare system to improve promotion of smoking cessation and, therefore, reduce the national burden of healthcare cost associated with disease caused by smoking cigarettes. Reducing the percentage of

Americans who smoke may have implications for improving health related quality of life, reducing specific cardiopulmonary disease rates, and supporting the Triple Aim of the Affordable Healthcare Act as a current standard of healthcare.<sup>45</sup>

The positive outcomes of smoking cessation are well documented in the literature. After quitting, an individual's risk of developing heart disease as a result of smoking is cut in half and continues to decrease the longer they abstain from smoking.<sup>46</sup> Smoking cessation has also been shown to decrease the risk of cancer, stroke, peripheral artery disease and chronic obstructive pulmonary disease.<sup>43</sup> In addition to preventing morbidity, smoking cessation has been shown to increase life expectancy and improve quality of life.<sup>45</sup> Further, the overall health of the economy would be positively impacted by the reduction of smokers in the United States. Ekpu et al. found that pharmacologic and medical interventions yielded a savings between \$128- \$4,400 savings per life year.<sup>47</sup> This suggests that if the percent of current adult smokers in the US was 12%, there would be an estimated savings between 462 million and 15 billion dollars.<sup>4</sup> Evidence has abundantly supported the health and economic benefits of smoking cessation for decades, although smoking has remained a significant issue impeding the health of the United States population throughout the years.

Smoking rates differ among persons with disabilities and their able-bodied counterparts. Armour and colleagues found the smoking rate of persons with disabilities to be 50% higher than people without disabilities.<sup>48</sup> Individuals living with a disability may be more susceptible than the general population to the health risks associated with smoking due to the compromised state of their body's functioning. A study conducted by

Myers et al. found that people with chronic spinal cord injuries have been found to have higher cardiovascular related mortality as compared to their able-bodied counterparts.<sup>49</sup> In addition, research has shown that long-term smoking is a risk factor for decreased physical capacity and increased difficulty with being physically active, which also have cardiovascular implications.<sup>50,51</sup> Studies also indicate that those with a disability, including those of a neurological nature, are more likely to experience negative health consequences as a result of inactivity than the general population.<sup>52</sup> Therefore, those who smoke and have a disability are at significantly greater risk of morbidity and mortality due to predisposing factors for a lifestyle lacking physical activity. Smoking also puts individuals with disability at greater risk for developing pressure ulcers. As many who suffer from decreased mobility due to a disability also have compromised skin integrity, smoking may further complicate this phenomenon by aging the skin faster.<sup>53</sup> The health risks are high for people who are disabled who smoke, and there is a desperate need for smoking cessation intervention by the healthcare system to address these risks.

### **Role of the Physical Therapist**

The role of the physical therapist is not only in the rehabilitation of their patients, but also in the promotion of health and wellness for patients and the community. An important way that physical therapists can promote health and wellness with patients is by counseling them in smoking cessation. Smoking cessation has been shown to greatly decrease the risk of the development of cardiovascular disease in all populations.<sup>43</sup> Physical therapists, due to the long term nature of their episodes of care with this

population, may be the ideal healthcare providers to guide patients through the process of smoking cessation, including patients who are living with a long-term disability.

The education received from accredited universities prepares physical therapists to play a role in providing patients with guidance through the smoking cessation process by including adequate education, advice, and guidance on how to do so in their curricula.<sup>54</sup> Pignataro suggests that physical therapists may in fact be the best healthcare provider to provide smoking cessation counseling to patients due to the high proportion of physical therapy students who received tobacco cessation counseling training as part of their academic curriculum.<sup>55</sup> She reported that 75% of PTs received smoking cessation counseling training, while 40% of other healthcare professionals received similar training.<sup>55</sup> Physical therapists are not only qualified to provide smoking cessation counseling but they are in the unique position to provide patients with smoking cessation counseling due to the frequency of visits, duration of episodes of care, and one on one treatment sessions during physical therapy.<sup>54</sup> It has been found that 77% of physical therapists surveyed agreed or strongly agreed that the profession should be more involved in helping patients to quit smoking.<sup>56</sup> There is currently no research surrounding the topic of smoking cessation counseling among the population of patients with a chronic neurological condition.

Similar to able-bodied individuals, those living with disabilities can benefit by stopping their smoking habits. It is the role of healthcare professionals to provide guidance and resources for smoking cessation, as patients who receive counselling about smoking cessation have an increased likelihood to stop smoking.<sup>54</sup> At this time, it is

unclear whether a specific profession in the field of healthcare is most effective at assisting patients with smoking cessation, however, it is evident that physical therapists may be in an optimal position. It is crucial that physical therapists consider smoking cessation as part of the physical therapy plan of care for appropriate patients in order to reduce the drastic consequences of prolonged smoking.

### **Physical Therapist Practice**

Although physical therapists are qualified and in an optimal position to provide patients with smoking cessation counseling, studies have shown that very few do. Bodner et al. found that most Canadian physical therapists rarely or never included smoking cessation as a part of their physical therapy plan of care when the patient was a smoker, while only 3.4% of therapists counseled “all the time”.<sup>56</sup> Common barriers identified to providing smoking cessation promotion to patients included lack of time and resources as well as an overall low self-rated confidence level about addressing smoking with patients.<sup>56</sup> These findings suggest that there is currently a lack of smoking cessation counseling being offered by physical therapists and integrated into a plan of care.

Little evidence exists on the overall prevalence of smoking cessation counseling and its effectiveness in other aspects of the healthcare system. There is, however, evidence supporting the efficacy of healthcare professionals who do provide counseling for the cessation of smoking. In a Cochrane review, Rice et al. found that patients who had smoking cessation interventions provided by nurses during their hospital stay were more likely to quit smoking.<sup>57</sup> Unfortunately, however, an English study of health

promotion found that only 11% of smokers had received advice on smoking cessation, and only 22% of patients considered a healthcare professional as their main source of health information.<sup>18</sup> Morgan found that the majority of dentists and dental hygienists did question patients on their tobacco use habits and educated patients on the risks and health consequences of tobacco use, however, no mention was made of continued intervention efforts.<sup>58</sup> These findings suggest that perhaps not enough healthcare professionals are asking the right questions about smoking habits, and those who do may be lacking adequate follow up to be effective in the promotion of smoking cessation.

The most effective means for counseling on smoking cessation in healthcare remains uncertain. Borrelli et al. found that pharmacological aids, going “cold turkey”, and nicotine replacement therapies are the most commonly used tools in assisting patients with their efforts to quit smoking. Attending a cessation clinic and individual counseling were each utilized by 1.3% of surveyed patients and phone counseling by 2.6%.<sup>59</sup> Regardless, Bodner et al., as well as the Center for Disease Control, have found clinical intervention and advice to be effective interventions in the cessation of smoking.<sup>43,54</sup> This suggests that with proper guidance, smokers may be more likely to act on their desires to successfully quit smoking.

Current literature on smoking cessation counseling provided by healthcare professionals to patients who are smokers suggests that very few patients are utilizing counseling as they attempt to quit smoking. Further research to investigate potential barriers that healthcare providers face in addressing smoking cessation with patients as part of their plan of care may be beneficial for filling this gap in healthcare service.

Despite the small amount of evidence that exists to suggest that smoking cessation counseling is effective when provided in healthcare settings, the means by which patients successfully quit smoking is unclear.

### **Patient Knowledge and Beliefs**

Evidence suggests the majority of smokers show interest in quitting. Data show that over 40% of smokers have attempted smoking cessation and as many as 68% of smokers indicate they would like to quit, however, there is a lack of successful smoking cessation due to inadequate support or knowledge provided by healthcare professionals.<sup>43,54</sup> Fifty-one percent of participants in an outpatient physical therapy setting agreed that physical therapist should advise them on abstaining from smoking.<sup>28</sup> A 2009 study conducted by Bodner and Dean found that over 42% of smokers in their study were in the pre-contemplative stage of the trans-theoretical stages of change, indicating no intention of change in the near future. An additional 40% of smokers were in the contemplative stage of change, indicating that they intend to change in the next six months.<sup>54</sup> These findings suggest that counseling may be an important factor in the facilitation of successful smoking cessation for those who are seeking to quit, and the intervention of a physical therapist or another healthcare professional may be crucial to create a lasting change in these patients' lives.

Although the prevalence of smoking may be higher in patients with physical disabilities than their able-bodied counterparts, the percentage of smokers in this population who would like to quit may be higher than the general population. A small



study conducted by Borelli et al. found that of the smokers with physical disabilities surveyed, 88.4% were thinking about quitting smoking in the next six months and 62% were considering quitting in the next thirty days.<sup>59</sup> Another study examined the opinions of veterans living with multiple sclerosis. It was found that over half of survey respondents that smoked reported a quit attempt in the past year and 59% stated they did not receive healthcare services to assist with smoking cessation, which they felt was needed.<sup>60</sup> These services can be critically important for this population as it has also been found that patients with increased mobility restrictions reported a significantly lower self-efficacy for smoking cessation and were more consistently in a lower stage of change on their own.<sup>61</sup> Although it has been suggested that the counselling needs of patients with disabilities are not being met, it is currently unclear what patients believe healthcare practitioners, specifically physical therapists, should be doing regarding smoking cessation.

### ***Fruit and Vegetable Consumption***

#### **Introduction**

Consuming a healthy diet is a widely known and accepted factor in maintaining health and preventing the onset of chronic diseases such as cardiovascular disease, diabetes, cancer, stroke, and respiratory disease. A healthy diet also contributes to overall musculoskeletal health by providing nutrients for metabolism during periods of activity and while the body is healing from an injury.<sup>62</sup> A multitude of evidence exists to support

that diets high in fruit and vegetables reduce the risk for developing chronic disease.<sup>63-66</sup> Fruit and vegetables contain many nutrients for metabolism, are low in calorie content to balance energy needs, and are high in water content for aiding in hydration.<sup>67</sup> The CDC currently recommends that individuals consume at least 5 servings of fruit and vegetables per day to experience health benefits, yet currently less than one-third of Americans consume the recommended amount of fruit and vegetables.<sup>63,68</sup> Globally, the World Health Organization attributed an estimated 1.7 million deaths to inadequate consumption of fruit and vegetables in 2010.<sup>64,65</sup> Further, insufficient fruit and vegetable consumption is listed among the top ten risk factors for premature mortality.<sup>64</sup> A study by Nagle et al. revealed that implementing interventions that promote consuming the recommended five servings of fruit and vegetables, in addition to adequate dietary fiber, could prevent 4% of all cancers.<sup>66</sup> With statistics of chronic disease on the rise, there is a need in healthcare to empower patients to create a lifestyle of personal health behaviors, including healthy nutritional habits, as a means to maintain health and prevent disease.<sup>69</sup>

Nutrition is an exceptionally important component of health for patients with neurologic disability. Malnutrition can be detrimental to a body whose function is already compromised and trying to adjust to the increased physical and mental demands of living with a neurological disability. Current healthcare practices strive to assist patients in their adjustment to life with disability, including the need to change lifestyle habits such as diet to balance calorie intake with nutrient demands to maintain health. Specifically, physical therapists play an important role in addressing impairments associated with disability. Weight control and the development of secondary chronic diseases are major

problems for the disabled population as indicated by CDC reports that obesity rates are 66% higher among those with disability than those without, and those with disability are more predisposed to develop secondary chronic disease when compared to those without disability.<sup>14,70</sup> The American Physical Therapy Association's position statement which asserts that addressing nutrition with patients is within the physical therapy scope of practice and it is our role to screen for malnutrition, provide information on diet, and/or refer to another qualified professional.<sup>71</sup> These reports highlight the duty that physical therapists have to consider multimodal factors that contribute to optimizing movement and the importance of promoting relevant healthy behaviors to facilitate wellbeing among this population. Poor nutritional habits, including inadequate fruit and vegetable consumption, are associated with poor health outcomes and specifically affect ability to achieve physical therapy goals in a compromised population.<sup>68</sup> Therefore, it is imperative that physical therapists address nutrition in their plan of care with patients with disabilities.

### **Role of the Physical Therapist**

Physical therapists have a unique role in the disabled population's healthcare experience by their opportunity to build rapport over several visits and through multiple episodes of care throughout the patient's life. Physical therapists are trained in risk assessment and the promotion of personal health behaviors.<sup>6</sup> Specifically, it is within the physical therapist's scope of practice to be knowledgeable about the important role that nutrition plays in healing, maintaining health, and optimizing physical performance for function.<sup>7</sup> Physical therapists are trained with the knowledge and skill to assess patients

for risks associated with malnutrition and energy imbalance.<sup>71</sup> Several screening tools such as DETERMINE and Mini Nutritional Assessment are reliable and valid, as well as time and cost effective to use in physical therapy practice to screen for diet-related risk and identify trends in eating habits.<sup>68</sup> Further, physical therapists can predict a need to address fruit and vegetable consumption with patients by gathering information about the patient's personal health habits. It has been found that patients who engage in regular physical exercise were 50% more likely to consume adequate amounts of fruit and vegetables in comparison to those who did not regularly exercise, and those who smoked cigarettes were twice as likely to lack adequate consumption of fruit and vegetables when compared to non-smokers.<sup>72</sup> A holistic view of the patient may provide valuable insight for physical therapists to evaluate whether further examination of dietary behavior is necessary in order to address barriers to optimizing patients' health.

Once risk and dietary trends have been identified, motivational interviewing can be used by physical therapists to assess patients' readiness to change.<sup>3,68</sup> Patients with disabilities may identify more barriers to achieving optimal nutrition such as being reliant upon others for grocery shopping and meal preparation, time and energy constraints, and tendency to choose comfort foods as a coping mechanism. In addition, some medications can alter one's appetite or the way food tastes, making it difficult to consume 5 or more servings of fruit and vegetables daily.<sup>70</sup> Physical therapists can promote fruit and vegetable consumption by educating patients about the health benefits of meeting the CDC recommendation. A study by Reininger et al. suggests that repeated exposure to education about fruit and vegetable consumption from various sources contributed to an

increase in actual number of servings of fruit and vegetables consumed by 30%.<sup>73</sup> These results indicate that there is great opportunity for physical therapists to serve as knowledgeable sources of exposure to nutritional education and, therefore, contribute to successfully increasing fruit and vegetable consumption among patients. Additionally, physical therapists are qualified to assist patients with identifying and overcoming barriers to fruit and vegetable consumption. Individualized care plans can include resources for patients to develop healthy eating habits and referral to registered dietitians when dietary concerns are outside of the physical therapy scope of practice.<sup>68</sup> The previously stated factors indicate that physical therapists may be in a crucial position within the healthcare system to monitor multifactorial components of disabled patients' health status and encourage the reinforcement of healthy lifestyle habits.

### **Physical Therapy Practice**

Current literature describes a gap between the physical therapist's ability to intervene in nutrition-related counseling and what is actually being practiced by physical therapists.<sup>68</sup> In an outpatient physical therapy setting, approximately 5% of patients noted that their physical therapist discussed fruit and vegetable consumption with them.<sup>28</sup> Despite having the knowledge that nutrition plays a role in physical therapy outcomes, nutrition consultation is an under addressed component in the promotion of health and wellness behaviors by physical therapists. According to a study by Morris et al., physical therapists believe that screening and addressing nutrition is an important aspect of physical therapist care, but there is a discrepancy between belief and what is being practiced.<sup>68</sup> In general, healthcare professionals identified that malnutrition could lead to

health complications and prolonged hospital stays, yet there were many barriers that contributed to their lack of nutritional assessment and intervention.<sup>74</sup> Most commonly reported barriers by physicians and nurses included insufficient knowledge, lack of interest, and lack of responsibility in addressing nutritional practice.<sup>74</sup> Mowe's findings are consistent with other existing literature which identifies that physicians think nutrition consultation is important, yet dietary considerations are being discussed with less than 40% of patients in primary care settings.<sup>75,76</sup> Further, physicians who practiced nutritional counseling averaged only one minute on the topic.<sup>77</sup> Although there is currently a lack of evidence outlining the physical therapist's role in nutritional intervention, current practice habits likely resemble those of physicians. This indicates that there is significant room for growth in addressing nutritional behavior with patients in the practice of physical therapy.

A problem with nutritional assessment in healthcare after the onset of a chronic neurologic disability is that the focus of healthcare changes from preventative checkups and risk factor management to treatment of the acquired pathology. Approximately 30 percent of hospitalized patients become malnourished during their acute care stays, indicating that education and assistance regarding nutrition is necessary to prevent further health decline due to nutrition-related factors.<sup>78</sup> One difficulty physical therapists may face in nutritional counseling during acute rehabilitation is the appropriateness of addressing eating habits in comparison to impairments, mobility limitations, and the emotional coping that occurs during the inpatient timeframe. This suggests that the post-acute rehabilitation period may be the most appropriate time to address health and

wellness behaviors such as consuming a healthy diet in order to help the patients adjust to a new lifestyle in accordance with their acquired condition.

### **Patient Knowledge and Beliefs**

There is currently a lack of literature addressing the patient's perspective of the physical therapist's role in nutritional counseling, specifically regarding recommendation of fruit and vegetable consumption in a disabled population. In general, patients seek guidance regarding health behaviors from their primary care physicians. Concerning diet, patients view physicians as the experts in developing behavior patterns to prevent chronic disease, and evidence suggests that physician recommendation warrants significant response by patients to make an effort to improve lifestyle behaviors.<sup>77</sup> However, a majority of patients reported that they want more assistance in addressing health behaviors than they are getting.<sup>79</sup> According to a study by Wadden et al., nearly half of overweight or obese patients reported they did not receive dietary counseling or physical activity recommendations as weight loss strategies from their physicians during routine checkups.<sup>80</sup> These findings indicate that patients do value their health and may be more likely to elicit healthy behavioral changes as a result of adequate guidance than healthcare professionals anticipate.

It is difficult to assess whether disabled patients are knowledgeable about fruit and vegetable consumption based on the current statistics of chronic disease. A European study by Kearney and McElhone found that over 80% of participants reported barriers to consuming a healthy diet. Lack of knowledge about healthy eating was not frequently reported as a barrier, but rather time, taste, and cost were perceived as the greatest

barriers to eating a healthy diet.<sup>81</sup> Further, participants identified means such as ‘consuming more fruit and veggies’ and ‘reducing saturated fat consumption’ as ways to improve diet, yet did not report that those factors were self-applicable.<sup>81</sup> This study suggests that it is important for healthcare providers to not only educate about the benefits of a healthy diet, but also assist patients with self-assessment of diet to identify areas that may be contributing to potential poor health outcomes, especially for patients with disabilities. It would be expected that the more a patient is involved with the healthcare system, the more likely a patient is to be educated by healthcare providers about proper fruit and vegetable consumption. Due to the lack of literature, there is great potential for scientific research to address the disabled population’s knowledge about consuming a healthy diet and the discrepancy between knowledge and actual diet.

### **Conclusion**

Overall, the promotion of personal health behaviors is in alignment with the APTA’s vision to impact society by improving health. The literature shows that physical therapists are in an optimal position to provide advice on healthy behaviors as they have received extensive education on health and wellness, have ample opportunity to build rapport with patients, and display confidence in addressing these behaviors. Furthermore, promotion of healthy behaviors by physical therapists has been shown to be effective in improving patient’s health. Overall, there is a lack of research regarding patient perceptions regarding personal health behaviors in both the healthy population and in those with physical disability. The purpose of the present study was to investigate the



perceptions of patients with neurological disability regarding the physical therapist's role in promoting and role modeling the previously described personal health behaviors.

## **Methods**

### **Design:**

This descriptive study was survey based and cross-sectional in nature.

### **Participants:**

A convenience sample of patients with chronic neurological conditions was recruited from Courage Kenny Rehabilitation Institute in Golden Valley, MN (CKGV). Inclusion criteria for eligibility to receive the survey included the following: 18 years of age or older, currently receiving outpatient physical therapy at CKGV with at least 3 visits in their current episode of care, ability to read English, cognitive ability that would allow for comprehension of a survey written at a minimum of a 6th grade reading level (as deemed by the treating physical therapist) and the presence of a neurological diagnosis. Eligible patients were identified by the treating physical therapist and were invited to participate in the study by a designated staff member within the clinic who was not involved in the patient's direct care. A cognitive screen was built into the survey to assess for inclusion eligibility. This was done in the form of two conversely written questions that assessed whether patients responded consistently to each question. Patients were given a statement "physical activity is important for health" and asked to indicate if they agreed or disagreed with this statement. Later in the survey, the same question was

asked of the converse of that statement, “physical activity is NOT important for health.” Opposite answers to these questions, regardless of the patient’s opinion about the statement, served as an additional tier for inclusion.

### **Materials and Procedures:**

This research study was completed by Doctor of Physical Therapy faculty and students at St. Catherine University in partnership with Allina Courage Kenny Rehabilitation Institute in Golden Valley. The study was approved by the Institutional Review Boards of both St. Catherine University and Allina Health. All researchers completed Collaborative Institutional Training Initiative (CITI) training.

The survey used in this study (Appendix A) was an adaptation of a survey originally developed by physical therapy students and researchers at both St. Catherine University and Oakland University for a study investigating the beliefs of patients being treated in an outpatient orthopedic setting. That survey was found to demonstrate face validity, and its test/retest reliability was strong with a Pearson Correlation Coefficient of  $r=0.897$  ( $p=0.006$ ).<sup>28</sup> The survey focused on four specific areas of personal health behaviors including engagement in physical activity, healthy weight management, smoking cessation, and consumption of fruit and vegetables. The changes made to the original survey to fit with this study population included modifications of the demographic section. Questions were added to the survey to identify factors such as neurological diagnosis, amount of time since the onset of the diagnosis, level of assistance with self-cares and activities of daily living, and assistance used to complete

the survey. Time frames on questions addressing duration of physical therapy services were also adjusted due to the long-term nature of many of these neurological diagnoses. In addition to the treating therapist's clinical reasoning to determine a patient's cognition as adequate, the aforementioned cognitive screen was built into the survey by assessing whether patients responded consistently to two opposing questions.

An inservice describing the study was provided by the researchers to the outpatient physical therapy department at CKGV. One hundred surveys were given to CKGV for distribution to patients. Patients who fit the inclusion criteria were identified by their primary physical therapist at CKGV, and the physical therapist aide from the department carried out the role of asking patients if they would like to participate in the study in order to avoid bias associated with being asked by the treating physical therapist. The aide, who distributed the surveys to patients, was provided with a script (Appendix B) to ensure consistency of instruction to all participants, as well as a list of frequently asked questions with responses to further clarify confusion and promote consistency of information. Potential participants were instructed that the survey would not take more than 20 minutes, they could complete it either in the clinic or at home, and their participation (or lack thereof) would have no impact on the therapy they were receiving in the clinic. The patients were given a packet of information including the survey with instructions on how to complete and return the survey, a paper document regarding the confidentiality and consent policy of the survey, and information about who to contact with any questions or concerns Appendix C. The survey packet also included a pre-addressed and stamped envelope to return their completed survey to the investigators.

Returning the survey by mail or to the staff at CKGV served as the patient's consent to participate in the study.

### **Data Analysis:**

Surveys were returned by mail to the primary investigator at St. Catherine University and coded for data analysis. Returned surveys were collected over a 5 month period from July to November 2015. The surveys were coded in Microsoft Excel to identify patients who met the inclusion criteria, whether or not the four specified personal health behaviors were addressed in their physical therapy plan of care, whether or not patients believed these behaviors should be addressed in their physical therapy plan of care, whether or not patients were engagers in the specified personal health behaviors, and the stage of change each patient identified with for each personal health behavior. Stage of change was determined according to the Transtheoretical model of behavior change which classifies change behavior into five categories. The first stage is 'precontemplation'. In this stage an individual reports their intention of changing. The second stage to this model is 'contemplation' which is characterized by the intention to change within 6 months. The third stage of the transtheoretical model is 'preparation', characterized by the intention to change the behavior in the next month and preparing to do so. The fourth stage is 'action' in which an individual is actively performing the behavior change, but doing so for less than six months. The fifth and final stage of change in this model is 'maintenance' characterized by participating in the new changed behavior for a minimum of six months.<sup>82</sup> Questions that were not answered were coded

as ‘no response’ and questions with misconstrued answers were coded as ‘inaccurate response’, and neither were included in the analysis. Additionally, surveys that displayed inconsistent responses to the cognitive screening questions were not included in data analysis.

Data was coded in two ways. Initially each response to each question on the survey was coded according to the numerical response on the Likert scale used in the survey. A one was assigned to those who strongly agreed, a two was assigned to those who agreed, a three to those who indicated neutral, a four to those who disagreed and five to those who indicated strong disagreement. After this initial coding researchers then coded the answers into two categories, agree or not agree. The responses that were initially coded as a one or two (strongly agree or agree) were coded a 1 indicating they agreed with a given question. An initial response of a three, four or five (neutral, disagree, or strongly disagree) were coded as a 2, indicating a lack of agreement to the given question. This coding was performed for all survey questions that asked patients if they agreed with a statement. Similarly, questions assessing an individual’s reported stage of change were coded as either engager (those in the maintenance or action stages of the Transtheoretical Model) or non-engager in that behavior (those in preparation, contemplation, precontemplation stages). Following data entry, a quality check was performed on a random sample of 3 surveys to determine accuracy of data reporting. Data from question responses were analyzed with averages and percentages, and this was performed in Microsoft Excel 2013.

## **Results**

During the 5 month collection period from July to November of 2015, Courage Kenny Rehabilitation Institute in Golden Valley distributed 100 surveys to patients. The return rate was 40% with a total of 40 surveys returned to the primary researcher. Four patients did not pass the cognitive screen and one was excluded due to not meeting the minimum number of physical therapy sessions. Therefore, a total of 35 surveys were analyzed. Patients were not required to answer all questions on the survey, and therefore, sample size differed in the analysis of responses.

### **Demographics**

The mean age of the respondents was 52.3 years (n=35) (SD= 16.7 years) and ranged from 22-82 years. The average Body Mass Index (BMI) reported by respondents (n=32) was 28.1 kg/m<sup>2</sup> (SD= 6.6 kg/m<sup>2</sup>) ranging from 21 - 51 kg/m<sup>2</sup>. Males represented 63% of the respondents and 37% were females. Fifty percent of subjects reported current episode of care to be greater than 6 weeks and 47% reported an episode of care less than 6 weeks. Forty-seven percent of respondents reported having their neurological condition for 5 years or more. Additional data regarding respondent demographics may be found in Table 1.

### **Survey Results**

Patients responded to the question of whether or not they were engaging in the government recommended levels of physical activity, fruit and vegetable consumption,

smoking abstinence, and weight maintenance (Table 2). Fifty-five percent (n=31) of respondents reported engaging in 150 minutes of moderate intensity exercise per week. Sixty-one percent (n=31) of respondents reported they consumed 5 cups of fruit and vegetables per day. Eighty one percent of respondents reported abstaining from smoking (n=32), and 42% (n=31) of responders reported maintaining a healthy weight.

Respondents were questioned regarding whether or not their physical therapist had addressed each health behavior with them during their physical therapy sessions (Table 2). Eighty percent (n=35) of respondents indicated physical activity had been addressed, 24% (n=33) reported fruit and vegetable consumption had been addressed, 100% of smokers (n=7) reported smoking cessation was addressed and 37% of respondents (n=35) reported maintenance of a healthy weight was addressed.

Respondents were asked their level of agreement as to whether their physical therapist should advise them on the levels of each of the health behaviors (Table 2). Eighty-nine percent (n=35) of respondents agreed for regular physical activity, 47% (n=34) for fruit and vegetable consumption, 65% (n=31) for smoking abstinence or cessation and 83% (n=35) for healthy weight management.

Respondents were asked if they agreed that their physical therapist should advise them on the benefits of each personal health behavior (Table 2). The level of agreement was 91% (n=35) for physical activity, 62% (n=34) for fruit and vegetables, 71% (n=31) for smoking and 77% (n=35) for healthy weight.

Respondents were asked if they agreed that it was appropriate for their physical therapist to suggest ways for them to increase or reduce a given health behavior (Table

2). The level of agreement was 94% (n=35) for physical activity, 59% (n=34) for fruit and vegetables, 70% (n=30) for smoking, and 76% (n=34) for healthy weight.

Respondents were asked if they agreed that their physical therapist should participate in a given health behavior as a role model to them (Table 2). Ninety-one percent (n=35) of respondents agreed for physical activity, 56% (n=34) for fruit and vegetables, 76% (n=33) for smoking abstinence and 74% (n=35) for healthy weight maintenance.

## **Discussion**

### **Demographics**

The large variation in age of survey respondents (Table 1) indicates that the sampled population included a diverse group at various stages of life. A majority of the respondents were male (62.9%), and the most prevalent neurological diagnosis was spinal cord injury (28.6%). This is consistent with literature reporting that there is a higher prevalence of males who are victims of spinal cord injuries than females.<sup>83</sup> Additional diagnoses are found in Table 1. Despite an effort by the researchers to assemble a comprehensive list of neurological diagnoses seen by physical therapists at CKGV, a relatively high percentage of respondents reported a diagnosis in the “other” category. Upon further investigation of diagnoses currently being treated at CKGV, it is apparent that the “other” category may include diagnoses such as cancer having neurological effects, progressive supranuclear palsy, idiopathic hydrocephalus, West Nile Virus, and congenital progressive cerebellar ataxia according to personal correspondence with the clinical liaison for this study. Although these conditions are relatively rare, it is not



surprising that these diagnoses were included, due to the nature of CKGV which is well known for treating complex neurological conditions.

Another notable demographic finding was the length of time since the onset of the respondents' neurological diagnoses. Most of the respondents (74%) reported having their condition greater than 3 years, indicating that the study sample was a good measure of a chronically disabled population. The significance of this characteristic is that patients in the chronic phases of their disease have had adequate time to cope with the major life changes that come with this type of neurological diagnosis and may be more open to incorporating personal health behaviors into their lifestyle habits.

Half of the survey respondents (50%) were receiving physical therapy services for at least 6 weeks. The average physical therapy plan of care at CKGV includes 60 minute sessions, 3 times per week. Under these circumstances, there was likely ample time for therapists to build rapport with patients to establish trusting relationships. This is consistent with current literature indicating that patients with neurological conditions typically participate in frequent physical therapy visits and have a long duration of care.<sup>84</sup> This may indicate that post-acute rehabilitation provides an opportunity for promoting personal health behaviors with patients due to the amount of time and patient-therapist relationships that may increase patients' acceptance of advice from physical therapists.

### **Physical Activity**

Participants in this study overwhelmingly agreed that physical therapists should promote physical activity. The results suggest that this is currently being done in practice,

as physical activity was addressed with 80% of patients. This is a great deal higher than in other studies with the neurological population, which reported receiving physical activity recommendation from *any* healthcare professional only 44% of the time.<sup>12</sup>

Although the results show that the vast majority of patients (80%) are receiving physical activity recommendation, 93% indicate that they believe physical therapists *should* advise about physical activity. This may show that there is a slight discrepancy between what patients want from their physical therapist and what is currently being done in clinical practice.

More than half of respondents (55%) reported that they are currently participating in the recommended 150 minutes of physical activity per week. This is significantly higher than previous studies reporting that only 31% of those with physical disability are meeting guidelines.<sup>12</sup> These results may be due in part to the inclusive atmosphere of Courage Kenny where physical activity is promoted consistently by an interdisciplinary team. In this setting, patients participate in a great deal of physical activity as they attend their physical therapy sessions. The average physical therapy plan of care consists of frequent visits as previously mentioned and a wellness component is built in to the plan of care. In addition, patients have access to various resources at Courage Kenny including a modified gym and many active recreational programs.

### **Weight Management**

A major discrepancy was found in the subject of weight management. It was found that 83% of patients believe physical therapists should advise them about their

weight, but weight was only addressed with 37% of patients. This is significant as there is a great need for weight management in this population. Previous studies have found that patients with neurological disability are 66% more likely to be obese.<sup>36</sup> This is reflected in the present study where the average BMI was 28.1, and 59.4% of respondents were either overweight or obese. These findings indicate that while there is a need for the promotion of a healthy weight in this population, and patients desire advice regarding weight management from their physical therapists, this need may not currently be met in practice. As a result of this discrepancy, there is great potential for physical therapists to improve clinical practice by addressing the topic of weight with patients in the neurological setting.

As weight management is largely a combination of physical activity and nutrition, the results also reflect a discrepancy between the high percentage of patients achieving recommended levels of physical activity, and the high rate of patients identifying as overweight or obese. The survey simply defined physical activity as moderate intensity denoting “When you see the word ‘Moderate’ in the question we are referring to activities such as a brisk walk (greater than 3mph), water aerobics, bicycling (<10mph), tennis doubles, ballroom dancing, or general gardening.” It was left up to the patient to decide if their current activity levels meet this definition of moderate physical activity. It is possible that patients may have believed that their physical therapy session or activities of daily living constituted moderate aerobic physical activity, and they reported achieving recommended levels, but a consistent pattern of moderate physical activity has not been incorporated into their permanent lifestyle. This suggests that there may be benefit to

addressing physical activity with patients regardless of their current levels of engagement in order to promote self-efficacy with developing a physically active lifestyle. A focus on long-term engagement in physical activity (and adequate nutrition) may therefore improve weight management after the patient is discharged from skilled physical therapy services.

### **Smoking Cessation**

In the present study, 6 of the 32 respondents surveyed were smokers. Though this is a small number, smoking cessation was addressed with 100% of these patients. This is significantly higher than other studies where PTs addressed smoking with only 17% of patients in an outpatient orthopedic setting.<sup>28</sup> This result may be attributable to a small sample size of reported smokers. However, another possible reason for this could be the increased length of care common with neurological pathologies providing more opportunity for smoking cessation to be addressed. In the present study, at least half of respondents have been in their current episode of care for more than 6 weeks. This is consistent with previous research showing that the average length of an episode of care in an outpatient rehabilitation setting is 7 weeks.<sup>84</sup> This increased attention to smoking cessation counselling in the neurological population could also be present because therapists may believe that the consequences of smoking with a concurrent neurological pathology are more severe than in a general population as they are more likely to have additional risk factors for cardiovascular disease.<sup>49,53</sup>

### **Fruit & Vegetable Consumption**

A majority of patients (61%) who participated in this study reported they consumed at least five cups of fruit and vegetables daily. This percentage is significantly higher than the general population of Americans in which only 13% reported consuming the daily recommendation of fruit and vegetables.<sup>85</sup> However, these results show that there is still a need for the promotion of a healthy diet in this population as 39% of patients surveyed were not getting adequate fruit and vegetables.

Fruit and vegetable consumption was only addressed with 24% of patients. While this is a low percentage, fruit and vegetable consumption was addressed more frequently with this population than in an outpatient orthopedic setting where only 6% of patients received recommendations.<sup>28</sup> The results may also be due in part to the team approach at Courage Kenny, where many patients receive care from multiple disciplines and are likely receiving counseling from a dietitian. This may be part of what is known as the bystander effect, where a service is not provided because it is assumed that someone else is doing it.<sup>86</sup> This has been demonstrated in medical settings by current research, and therefore, physical therapists may not be addressing fruit and vegetable consumption with patients as they believe another healthcare professional is doing this instead.<sup>86</sup> However, current research has indicated that efficacy of health promotion increases with the number of times patients are advised about it.<sup>87</sup>

Although patients overwhelmingly agree that physical therapists should advise them about personal health behaviors, an exception identified in this study was the specific behavior of fruit and vegetable consumption. Only 47% agreed that physical

therapists should advise in the amount of fruit and vegetables to consume, however, the majority of patients agreed that it was appropriate for physical therapists to advise on the benefits of consuming fruit and vegetables (62%) and ways to increase intake (59%). This may show that while patients do not specifically associate the traditional role of the physical therapist with addressing diet, discussion on this topic was widely accepted by patients in the context of physical therapy. This finding is consistent with the APTA's position statement which asserts that addressing nutrition with patients is within the physical therapy scope of practice, including screening for malnutrition, providing information on diet, and/or referring to another qualified professional.<sup>71</sup> It is significant that patients recognize that physical therapists are knowledgeable about nutrition and can provide beneficial information.

### **Role Models**

The majority of respondents believed their physical therapist should practice the personal health behaviors as a role model to them. The study by Black had similar findings in an outpatient orthopedic setting in which patients thought it was important for physical therapists to role model personal health behaviors, with the exception of fruit and vegetable consumption.<sup>28</sup> This data is significant because by addressing personal health behaviors in practice, PTs are often asking patients to alter lifestyle habits, which is not an easy task for many. According to patient responses, it appears that they are asking PTs to reciprocate those behavioral changes which may, in turn, involve a significant effort on the part of the PT.

## **Limitations**

A limitation for this study is the potential for selection bias. This study relied on the treating therapist designating eligible patients to receive a survey packet. This allows for potential bias of therapist selection. Furthermore, there may be bias associated with the clinical site itself. Courage Kenny has an interdisciplinary focus on health and wellness that may not be representative of all outpatient rehabilitation settings. Similarly, this survey was asking patients about their perspective of health and wellness topics. It is possible that the patients who took the time to respond to the study are also those who may tend to be more health conscious and more likely to engage in personal health behaviors. This may have impacted the results and be a contributing factor to the high percentage the present study found in all the health behaviors compared to previous literature.

Forty surveys met inclusion criteria and were included in analysis out of the 100 that were distributed to patients. This represents a 40% return rate, and constitutes a relatively small sample size. However, a 40% response rate is greater than has been demonstrated in the literature with the neurological population. A study by Fekete and colleagues demonstrated a 22% response rate for a survey in individuals with spinal cord injury. However, in Fekete's study, the return rate jumped to 61% when a phone call reminder was implemented.<sup>88</sup> The present study could presumably have achieved a higher return rate, and therefore increased sample size, by following up with patients after the survey had been distributed.

Lastly, this survey was validated in the outpatient orthopedic population, and several questions were added or changed in the demographic section to be more applicable to a neurological population. It is unclear how this may have affected the psychometric properties of the survey.

### **Future Research**

There are several opportunities for future research regarding this topic. The first is to formally evaluate the psychometric properties of the survey within the neurological population and investigate perceptions of this patient population further with an increased sample size, drawing from multiple clinical locations. Furthermore, a study could be performed to investigate differences of health promotion beliefs between patients with progressive and non-progressive pathologies. Another study could examine how results would be impacted if the survey was administered following a patient's episode of care, where they are no longer receiving the formal, structured opportunity for physical activity and instead must fit it in everyday routines.

### **Conclusion**

There is minimal research regarding patient perceptions of health promotion practices throughout the healthcare field. The present study shows that patients with neurological conditions in an outpatient rehabilitation setting believe their physical therapist should promote personal health behaviors. With most of the health behaviors studied (physical activity, weight management and fruit and vegetable consumption)



more patients believe they should be counseled about these topics than actually were.

This was not found to be true for smoking, as smoking cessation was addressed with all identified smokers, although this may be due to a small sample size of smokers surveyed.

Overall, these results may indicate an opportunity for physical therapists to improve practice and efficacy of health promotion by addressing personal health behaviors with more patients.

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**Table 1. Survey Results of Demographic Information.**

<b>Characteristic</b>	<b>Patient Response</b>
<b>Age</b> (years)	52 ± 17
<b>BMI</b> (kg/m <sup>2</sup> )	28 ± 7
<b>Gender</b>	
Male	66%
Female	34%
<b>Patient's Level of Independence</b>	
Live Independently	18%
Live independently with some assistance for self-cares	43%
Live independently with full time assistance for self-cares	29%
Live in a group home or care center	4%
Other	7%
<b>Length of PT Episode of Care</b>	
1-2 Weeks	10%
3-4 Weeks	17%
6+ Weeks	52%
Do not know	4%
<b>Time Elapsed Since Diagnosis</b>	
1-6 Months	11%
7-12 Months	7%
1-2 Years	4%
3-5 Years	32%
5+ Years	46%

**Table 2. Survey Results by Percentage.**

<b>Meeting Government Guidelines for: (ACSM, CDC)*</b>	<b>n</b>	<b>Respondent Engagement (%)</b>
Physical Activity (150 min/wk)	31	55%
Fruit and Vegetable Intake (5 cups/day)	31	61%
Smoking Abstinence	32	81%
Healthy Weight Maintenance (BMI 18 - 24.9)	31	42%
<b>Did your therapist (s) talk to you about:</b>	<b>n</b>	<b>Addressed PHB (%)</b>
Physical Activity	35	80%
Fruit and Vegetable Intake	33	24%
Smoking Abstinence	7	100%
Healthy Weight Maintenance	35	37%
<b>Do you agree it is appropriate that your physical therapist should advise you on recommended levels of :</b>	<b>n</b>	<b>Respondent Agreement (%)</b>
Physical Activity	35	89%
Fruit and Vegetable Intake	34	47%
Smoking Abstinence	31	65%
Healthy Weight Maintenance	35	83%
<b>Do you agree it is appropriate that your physical therapist should advise you on the benefits of:</b>	<b>n</b>	<b>Respondent Agreement (%)</b>
Physical Activity	35	91%
Fruit and Vegetable Intake	34	62%
Smoking Abstinence	31	71%
Healthy Weight Maintenance	35	77%
<b>Do you agree it is appropriate that your physical therapist should suggest ways to increase:</b>	<b>n</b>	<b>Respondent Agreement (%)</b>
Physical Activity	35	94%
Fruit and Vegetable Intake	34	59%
Smoking Cessation	30	70%

Healthy Weight Maintenance	34	76%
<b>Do you agree it is appropriate that you physical therapist should role model to you:</b>	<b>n</b>	<b>Respondent Agreement (%)</b>
Physical Activity	35	91%
Fruit and Vegetable Intake	34	56%
Smoking Abstinence	33	76%
Healthy Weight Maintenance	35	74%

\*It is recommended to be physically active for 150 min per week at a moderate intensity level, consume 5 cups total of fruit and vegetables per day, to abstain from smoking completely, and to achieve a healthy body weight is to maintain a body mass index between 18-24.9 kg/m<sup>2</sup>.

## Appendix A- Survey

The following survey includes general questions about your background and your personal habits in the areas of physical activity, nutrition, smoking, and healthy weight. There are also questions asking you what you believe the role of a physical therapist to be with regard to discussing these health behaviors with you. Please answer each question to the best of your ability. There is no correct answer so please respond by selecting the ONE choice which **best** describes you. You may skip any question that you are not comfortable answering.

It should take you 20 minutes or less to complete this survey.

The physical therapist(s) that are treating you will NOT be informed as to whether or not you completed this survey. The information from your completed survey will NEVER be shared with the physical therapist(s) that are treating you.

Please do NOT put your name or address on this survey or on the envelope that you will use to return the survey.

1. How old did you turn on your last birthday?

\_\_\_\_\_ Years

2. What is your sex?

\_\_\_\_\_ 1. Male

\_\_\_\_\_ 2. Female

3. Being physically active is important for health?

\_\_\_\_\_ 1. Agree

\_\_\_\_\_ 2. Disagree

4. How much schooling have you completed?

\_\_\_\_\_ 1. Some high school

\_\_\_\_\_ 2. High school diploma or equivalent

\_\_\_\_\_ 3. Some college

\_\_\_\_\_ 4. Graduated college

\_\_\_\_\_ 5. Post graduate education

5. Which of the following statements is true for you?

\_\_\_\_\_ 1. I live independently without any assistance for my self-cares

\_\_\_\_\_ 2. I live independently with assistance for some of my self-cares

\_\_\_\_\_ 3. I live independently with full time assistance for my self-cares

\_\_\_\_\_ 4. I live in a group home or care center

\_\_\_\_\_ 5. Other – Describe

\_\_\_\_\_ 6. I don't know

6. What is the PRIMARY condition for which you are currently being seen for in physical therapy? PLEASE SELECT ONLY ONE RESPONSE

- ☐ 1. Cerebral Vascular Accident (CVA)
- ☐ 2. Traumatic Brain Injury (TBI)
- ☐ 3. Acquired Brain Injury (ABI)
- ☐ 4. Cerebral Palsy (CP)
- ☐ 5. Parkinson's Disease (PD)
- ☐ 6. Multiple Sclerosis (MS)
- ☐ 7. Spinal Cord Injury (SCI)
- ☐ 8. Huntington's Disease
- ☐ 9. Guillain-Barré
- ☐ 10. Post Polio
- ☐ 11. Spina Bifida
- ☐ 12. Other

7. Have you been treated by a physical therapist for at least 3 sessions for your most current condition?

- ☐ 1. Yes
- ☐ 2. No

8. For how long has your physical therapist been treating you for your most current condition?

- ☐ 1. 1-2 weeks
- ☐ 2. 3-4 weeks
- ☐ 3. 5-6 weeks
- ☐ 4. more than 6 weeks
- ☐ 5. I don't know

9. For how long have you had the condition you are currently being treated for in physical therapy?

- ☐ 1. less than 1 month
- ☐ 2. for about 1-6 months
- ☐ 3. for more than 6 months 6-12 months
- ☐ 4. 1-2 years
- ☐ 5. 3-5 years
- ☐ 6. More than 5 years
- ☐ 4. I don't know

10. Being physically active is NOT important for health?

- ☐ 1. Agree
- ☐ 2. Disagree

The next set of questions pertains to your physical activity level. When you see the word “Moderate” in the question we are referring to activities such as a brisk walk (greater than 3mph), water aerobics, bicycling (<10mph), tennis doubles, ballroom dancing, or general gardening. There is no right or wrong answer to these questions. Please mark the ONE response that best describes your current behavior

11. Do you exercise at a moderate intensity, as defined above, for at least 150 minutes (2.5 hours) per week? For example: 30 minutes for 5 days/week

PLEASE SELECT ONLY ONE RESPONSE

- ☐ 1. Yes, and I have been for more than 6 months
- ☐ 2. Yes, and I have been for less than 6 months
- ☐ 3. No, but I intend to start within the next 30 days
- ☐ 4. No, but I intend to start within the next 6 months
- ☐ 5. No, and I do not intend to start within the next 6 months

12. Did your physical therapist(s) talk to you about your physical activity level?

- ☐ 1. Yes
- ☐ 2. No
- ☐ 3. I do not recall

13. Do you agree it is appropriate that your physical therapist(s) should advise you on the recommended levels of regular physical activity?

- ☐ 1. Strongly Agree
- ☐ 2. Agree
- ☐ 3. Neutral
- ☐ 4. Disagree
- ☐ 5. Strongly Disagree

14. Do you agree it is appropriate that your physical therapist(s) should advise you on the benefits of being physically active?

- ☐ 1. Strongly Agree
- ☐ 2. Agree
- ☐ 3. Neutral
- ☐ 4. Disagree
- ☐ 5. Strongly Disagree

15. Do you agree it is appropriate that your physical therapist(s) should suggest ways for you to increase your daily physical activity?

- ☐ 1. Strongly Agree
- ☐ 2. Agree

- \_\_\_\_ 3. Neutral
- \_\_\_\_ 4. Disagree
- \_\_\_\_ 5. Strongly Disagree

16. Do you agree it is appropriate that your physical therapist(s) should be physically active as a role model to you?

- \_\_\_\_ 1. Strongly Agree
- \_\_\_\_ 2. Agree
- \_\_\_\_ 3. Neutral
- \_\_\_\_ 4. Disagree
- \_\_\_\_ 5. Strongly Disagree

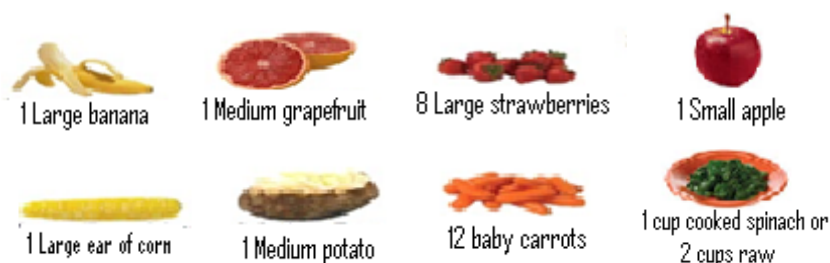
In this next series of questions we ask you to respond to questions about your eating of fruits and vegetables. There is no right or wrong answer to these questions. Please mark the ONE response that best describes your current behavior.

17. Using the examples below, do you consume a total of 5 cups per day of fruits and vegetables every day? PLEASE SELECT ONLY ONE RESPONSE

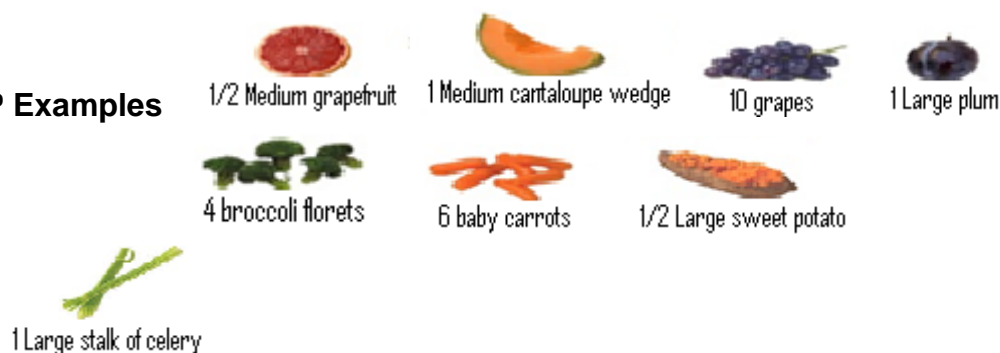
- ☐ 1. Yes, and I have been for more than 6 months  
☐ 2. Yes, and I have been for less than 6 months  
☐ 3. No, but I intend to start within the next 30 days  
☐ 4. No, but I intend to start within the next 6 months  
☐ 5. No, and I do not intend to start within the next 6 months

Below are examples of 1 Cup and ½ Cup fruit and vegetables servings. If you cannot find examples of the types of fruits and vegetables that you eat, please use your best estimate of 1 cup and ½ cup servings.

### 1 CUP Examples



### ½ CUP Examples



18. Did your physical therapist(s) talk to you about the amount of fruit and vegetables that you eat each day?

- ☐ 1. Yes  
☐ 2. No  
☐ 3. I do not recall



19. Do you agree it is appropriate that your physical therapist(s) should advise you in amount of fruit and vegetables that you eat each day?

- ☐ 1. Strongly Agree
- ☐ 2. Agree
- ☐ 3. Neutral
- ☐ 4. Disagree
- ☐ 5. Strongly Disagree

20. Do you agree it is appropriate that your physical therapist(s) should advise you on the benefits of the amount of fruit and vegetables that you eat each day?

- ☐ 1. Strongly Agree
- ☐ 2. Agree
- ☐ 3. Neutral
- ☐ 4. Disagree
- ☐ 5. Strongly Disagree

21. Do you agree it is appropriate that your physical therapist(s) should suggest ways for you to increase the amount of fruit and vegetables that you eat each day?

- ☐ 1. Strongly Agree
- ☐ 2. Agree
- ☐ 3. Neutral
- ☐ 4. Disagree
- ☐ 5. Strongly Disagree

22. Do you agree it is appropriate that your physical therapist(s) should serve as a role model to you with regards to the amount of fruit and vegetables eaten each day?

- ☐ 1. Strongly Agree
- ☐ 2. Agree
- ☐ 3. Neutral
- ☐ 4. Disagree
- ☐ 5. Strongly Disagree

The next series of questions ask you to respond to questions about cigarette smoking. There is no right or wrong answer to these questions. Please mark the ONE response that best describes your current behavior.

23. Do you smoke cigarettes? PLEASE SELECT ONLY ONE RESPONSE

- ☐ 1. I have never smoked cigarettes
- ☐ 2. I have quit for more than 6 months
- ☐ 3. Yes, but I am in the process of giving up smoking
- ☐ 4. Yes, but I intend to quit smoking in the next 30 days
- ☐ 5. Yes, but I intend to quit smoking in the next 6 months
- ☐ 6. Yes, and I do not intend to quit smoking in the next 6 months

If you responded to the above question by marking numbers 1 or 2, please **skip** the next question (Question 24) and continue the survey at question 25. If you responded **“YES”** to the above question by marking numbers 3, 4, 5, or 6 please continue with the next question (Question 24).

24. Did your physical therapist(s) talk to you about your smoking?

- ☐ 1. Yes
- ☐ 2. No
- ☐ 3. I do not recall

25. Do you agree it is appropriate that your physical therapist(s) should advise you in abstaining from cigarette smoking?

- ☐ 1. Strongly Agree
- ☐ 2. Agree
- ☐ 3. Neutral
- ☐ 4. Disagree
- ☐ 5. Strongly Disagree

26. Do you agree it is appropriate that your physical therapist(s) should advise you on the benefits of not smoking cigarettes?

- ☐ 1. Strongly Agree
- ☐ 2. Agree
- ☐ 3. Neutral
- ☐ 4. Disagree
- ☐ 5. Strongly Disagree

27. Do you agree it is appropriate that your physical therapist(s) should suggest ways for you to stop or reduce your smoking cigarettes?

- ☐ 1. Strongly Agree
- ☐ 2. Agree

- \_\_\_\_ 3. Neutral
- \_\_\_\_ 4. Disagree
- \_\_\_\_ 5. Strongly Disagree

28. Do you agree it is appropriate that your physical therapist(s) should not smoke as a role model to you?

- \_\_\_\_ 1. Strongly Agree
- \_\_\_\_ 2. Agree
- \_\_\_\_ 3. Neutral
- \_\_\_\_ 4. Disagree
- \_\_\_\_ 5. Strongly Disagree

In this final series of question we ask you respond to questions about your body weight. There is no right or wrong answer to these questions. Please mark the ONE response that best describes your current behavior.

29. Using the table below, please find your weight on the left side of the table and your height on the top of the table. If you don't know your exact height and weight, please use your best estimate. Please circle on the table where your height and weight meet and write this number in the space below.

The number that corresponds to where my height and weight meet is:

		Height In feet																		
		4' 10"	4' 11"	5'	5' 1"	5' 2"	5' 3"	5' 4"	5' 5"	5' 6"	5' 7"	5' 8"	5' 9"	5' 10"	5' 11"	6'	6' 1"	6' 2"	6' 3"	6' 4"
Weight in pounds	90	19	18	18	17	16	16	15	15	15	14	14	13	13	13	12	12	12	11	11
	100	21	20	20	19	18	18	17	17	16	16	15	15	14	14	14	13	13	12	12
	110	23	22	21	21	20	19	19	18	18	17	17	16	16	15	15	15	14	14	13
	120	25	24	23	23	22	21	21	20	19	19	18	18	17	17	16	16	15	15	15
	130	27	26	25	25	24	23	22	22	21	20	20	19	19	18	18	17	17	16	16
	140	29	28	27	26	26	25	24	23	23	22	21	21	20	20	19	18	18	17	17
	150	31	30	29	28	27	27	26	25	24	23	23	22	22	21	20	20	19	19	18
	160	33	32	31	30	29	28	27	27	26	25	24	24	23	22	22	21	21	20	19
	170	36	34	33	32	31	30	29	28	27	27	26	25	24	24	23	22	22	21	21
	180	38	36	35	34	33	32	31	30	29	28	27	27	26	25	24	24	23	22	22
	190	40	38	37	36	35	34	33	32	31	30	29	28	27	26	26	25	24	24	23
	200	42	40	39	38	37	35	34	33	32	31	30	30	29	28	27	26	26	25	24
	210	44	42	41	40	38	37	36	35	34	33	32	31	30	29	28	28	27	26	26
	220	46	44	43	42	40	39	38	37	36	34	33	32	32	31	30	29	28	27	27
	230	48	46	45	43	42	41	39	38	37	36	35	34	33	32	31	30	30	29	28
	240	50	48	47	45	44	43	41	40	39	38	36	35	34	33	33	32	31	30	29
	250	52	50	49	47	46	44	43	42	40	39	38	37	36	35	34	33	32	31	30
	260	54	53	51	49	48	46	45	43	42	41	40	38	37	36	35	34	33	32	32
	270	56	55	53	51	49	48	46	45	44	42	41	40	39	38	37	36	35	34	33
	280	59	57	55	53	51	50	48	47	45	44	43	41	40	39	38	37	36	35	34
	290	61	59	57	55	53	51	50	48	47	45	44	43	42	40	39	38	37	36	35
	300	63	61	59	57	55	53	51	50	48	47	46	44	43	42	41	40	39	37	37

30. The shaded area on the table corresponds to a range of healthy weight. According to the table above is your body weight in the healthy weight range (in the shaded area)? PLEASE SELECT ONLY ONE RESPONSE

- ☐ 1. Yes, and it has been for more than 6 months
- ☐ 2. Yes, and it has been for less than 6 months
- ☐ 3. No, and I intend to take action to address my weight in the next 30 days
- ☐ 4. No, and I intend to take action to address my weight in the next 6 months
- ☐ 5. No, and I do not intend to take action addressing my weight within the next 6 months

31. Did your physical therapist(s) talk to you about your weight?

- ☐ 1. Yes
- ☐ 2. No
- ☐ 3. I do not recall

32. Do you agree it is appropriate that your physical therapist(s) should advise you in maintaining a healthy weight?

- ☐ 1. Strongly Agree
- ☐ 2. Agree
- ☐ 3. Neutral
- ☐ 4. Disagree
- ☐ 5. Strongly Disagree

33. Do you agree it is appropriate that your physical therapist(s) should advise you on the benefits of maintaining a healthy weight?

- ☐ 1. Strongly Agree
- ☐ 2. Agree
- ☐ 3. Neutral
- ☐ 4. Disagree
- ☐ 5. Strongly Disagree

34. Do you agree it is appropriate that your physical therapist(s) should suggest ways for you to maintain a healthy weight?

- ☐ 1. Strongly Agree
- ☐ 2. Agree
- ☐ 3. Neutral
- ☐ 4. Disagree
- ☐ 5. Strongly Disagree

35. Do you agree it is appropriate that your physical therapist(s) should be a healthy weight as a role model to you?

- ☐ 1. Strongly Agree
- ☐ 2. Agree
- ☐ 3. Neutral
- ☐ 4. Disagree
- ☐ 5. Strongly Disagree

36. Which of the following statements is true for you?

- ☐ 1. I completed this survey without any assistance
- ☐ 2. I used assistance to have the survey read to me
- ☐ 3. I used assistance to mark my answers to the questions
- ☐ 4. I used assistance to both have the survey read to me and to mark my answers to the questions

**Thank you for your completion of the survey. Please return the survey in the addressed and stamped envelope that was included with the survey.**

**If you have misplaced or did not receive the envelope please mail your survey to:**

MarySue Ingman, PT, DSc  
St Catherine University DPT Program  
601 25<sup>th</sup> Ave So  
Minneapolis, MN 55454

## **Appendix B: Script and FAQs**

### Script for clinic staff:

- Your PT has indicated that you qualify to participate in a research study being conducted by students and faculty at St Catherine University Doctor of Physical Therapy Program
- The study involves you completing a survey and mailing it back
- Here is a packet that explains the study and includes the survey for you complete at home and mail in or you can complete it now and leave it with me
- This is totally optional
- Would you like a packet?

**(NOTE TO STAFF:** Frequently asked questions and the appropriate responses are on the attached sheet.)

### Frequently asked questions that the clinic receptionist may be asked:

- ***What is the survey about?***
  - It is a study to see what our patients think about physical therapists discussing various health behaviors with them; behaviors such as engaging in physical activity, healthy eating, healthy weight, and not smoking.
- ***How long does it take to complete the survey?***
  - It should take no more than 20 minutes

- ***Can I have help filling it out?***
  - Yes you can have someone read the questions to you and/or write your responses for you
  - Since the study is to find out what YOU think ...only you should respond the questions
- ***Do I have to use my one stamp to mail it back?***
  - No there is a self-addressed and stamped envelope in the packet for you to mail the survey
- ***Can I just fill it out now and leave it with you?***
  - Yes that would be fine
- ***What if I don't want to take a packet?***
  - This is totally optional; accepting or not accepting the packet has no bearing on your relationship with Allina or Courage Kenny. Even if you do take the packet, you may decide after reading the information that you do not want to participate.
- ***Will my PT see my completed survey? Or know whether I completed the survey?***
  - There will be no way of identifying if you have or have not participated as no names are recorded anywhere in this process.
  - If you do participate and complete the survey, your physical therapist will not know who you are as there is no name recorded anywhere on the survey, and it is sent directly to the physical



therapy professor at St. Catherine University who is conducting this research with us.

## **Appendix C- Information sheet**

### **INFORMATION SHEET FOR RESEARCH**

#### *Physical Therapists' Role in Health Promotion as Perceived by Patients with Neurological Pathologies: A Descriptive Study*

You are invited to be in a research study of patients' opinions about physical therapists discussing health behaviors with them during treatment. You were selected as a possible participant because you are receiving physical therapy at Courage Kenny Rehabilitation Institute – Golden Valley Campus. We ask that you read this form and ask any questions you may have before agreeing to be in the study.

This study is being conducted by

- Elizabeth Scherer, PT, DPT a physical therapist at Courage Kenny Rehabilitation Institute – Golden Valley Campus
- MarySue Ingman, PT, DSc a researcher from St. Catherine University Doctor of Physical Therapy Program
- Christina Anderson, PT, DPT a researcher from St. Catherine University Doctor of Physical Therapy Program

#### **Procedures:**

If you agree to be in this study, we would ask you to complete the attached survey. The survey will take about 20 minutes to complete. It asks questions about you, your health behaviors, and your opinions about physical therapists discussing health behaviors with patients. You are free to not answer any question on the survey that you do not wish to answer.

You would complete the survey either today or tomorrow. When you finish it, you would mail it to the researchers in the stamped envelope provided.

#### **Confidentiality:**

The survey does not ask for your name or address. We will not know who participated and who did not participate in the study. Your physical therapist will not be informed as to whether or not you participated in this study

The records of this study will be kept private. In any sort of report we might publish, we will not include any information that will make it possible to identify a subject. Research records will be stored securely and only researchers will have access to the records.

**Voluntary Nature of the Study:**

Participation in this study is voluntary. Your decision whether or not to participate will not affect your current or future relations with Allina Health, Courage Kenny Rehabilitation Institute – Golden Valley Campus, or Saint Catherine University. If you decide to participate, you are free to not answer any question or withdraw at any time without affecting those relationships.

**Contacts and Questions:**

The researchers conducting this study are Elizabeth Scherer, MarySue Ingman and Christina Anderson. If you have questions, **you are encouraged** to contact them at 651.690.7813 or [msingman@stkate.edu](mailto:msingman@stkate.edu).

If you have any questions or concerns regarding this study and would like to talk to someone other than the researcher(s), **you are encouraged** to contact Allina IRB office at 612-26-4920 or [IRB@allina.com](mailto:IRB@allina.com)

***You will be given a copy of this information to keep for your records.***

***If you complete the survey, you are giving your consent to participate in the study.***